

## WHAT IS CLAIMED IS:

1. A high acceleration time shift control apparatus for a vehicle, comprising:
  - a transmission which achieves plural shift speeds whose gear ratios are different from each other; and
  - a high acceleration time upshifting control device which changes a shift speed of the transmission to a higher speed based on a predetermined determination rotational speed such that an input rotational speed of the transmission substantially reaches a target maximum rotational speed when a request for high acceleration is made by a driver, wherein the high acceleration time upshifting control device outputs an upshift command for performing an upshift when the determination rotational speed reaches a predetermined shift determination speed; calculates an actual ineffective time until shifting is actually started and the input rotational speed starts decreasing after the upshift command is output; computes a virtual maximum rotational speed, that is a maximum rotational speed when the input rotational speed changes at a reference rotational speed change rate, based on the input rotational speed when the upshift command is output, the ineffective time and the predetermined reference rotational speed change rate; and changes the shift determination speed such that the virtual maximum rotational speed comes close to the target maximum rotational speed and then performs learning.
2. The high acceleration time shift control apparatus for a vehicle according to claim 1, wherein the reference rotational speed change rate is decided for each type of upshifting.
3. The high acceleration time shift control apparatus for a vehicle according to claim 1, wherein the high acceleration time upshifting control device calculates a correction value based on a difference between the target maximum rotational speed and the virtual maximum rotational speed, and changes the shift determination speed based on the correction value and then performs learning.
4. The high acceleration time shift control apparatus for a vehicle according to claim 3, wherein, when a maximum value of the actual input rotational speed during shifting is equal to or higher than a predetermined value, the high acceleration time upshifting

control device makes effect of the correction value on the shift determination speed large compared with a case where the maximum value of the actual input rotational speed during shifting is lower than the predetermined value.

5. A high acceleration time shift control apparatus for a vehicle, comprising:
  - a transmission which achieves plural shift speeds whose gear ratios are different from each other; and
  - high acceleration time upshifting means for changing a shift speed of the transmission to a higher speed based on a predetermined determination rotational speed such that an input rotational speed of the transmission substantially reaches a target maximum rotational speed when a request for high acceleration is made by a driver, wherein the high acceleration time upshifting means, comprises:
    - shift determination means for outputting an upshift command for performing an upshift when the determination rotational speed reaches the predetermined shift determination speed;
    - ineffective time calculating means for calculating an actual ineffective time until shifting is actually started and the input rotational speed starts decreasing after the upshift command is output;
    - virtual maximum rotational speed computing means for computing a virtual maximum rotational speed, that is a maximum rotational speed when the input rotational speed changes at a reference rotational speed change rate, based on the input rotational speed when the upshift command is output, the ineffective time and the predetermined reference rotational speed change rate; and
    - learning means for changing the shift determination speed such that the virtual maximum rotational speed comes close to the target maximum rotational speed.
6. The high acceleration time shift control apparatus for a vehicle according to claim 5, wherein the reference rotational speed change rate is decided for each type of upshifting.
7. The high acceleration time shift control apparatus for a vehicle according to claim 5, wherein the learning means calculates a correction value based on a difference between the target maximum rotational speed and the virtual maximum rotational speed, and changes the shift determination speed based on the correction value and then performs

learning.

8. The high acceleration time upshifting control device according to claim 7, wherein when a maximum value of the actual input rotational speed during shifting is equal to or higher than a predetermined value, the learning means makes effect of the correction value on the shift determination speed large compared with a case where the maximum value of the actual input rotational speed during shifting is lower than the predetermined value.
9. A high acceleration time shift control method for a vehicle comprising a transmission that achieves plural shift speeds whose gear ratios are different from each other, comprising the steps of:
  - changing a shift speed of the transmission to a higher speed based on a predetermined determination rotational speed such that an input rotational speed of the transmission substantially reaches a target maximum rotational speed when a request for high acceleration is made by a driver;
  - outputting an upshift command for upshifting when the determination rotational speed reaches a predetermined shift determination speed;
  - calculating an actual ineffective time until shifting is actually started and the input rotational speed starts decreasing after the upshift command is output;
  - computing a virtual maximum rotational speed, that is a maximum rotational speed when the input rotational speed changes at a reference rotational speed change rate, based on an input rotational speed when the upshift command is output, the ineffective time, and the predetermined reference rotational speed change rate; and
  - changing the shift determination speed such that the virtual maximum rotational speed comes close to the target maximum rotational speed and then performing learning.
10. The high acceleration time shift control method for a vehicle according to claim 9, wherein the reference rotational speed change rate is decided for each type of upshifting.
11. The high acceleration time shift control method for a vehicle according to claim 9, further comprising the step of:
  - calculating a correction value based on a difference between the target maximum

rotational speed and the virtual maximum rotational speed and changing the shift determination speed based on the correction value and then performing learning.

12. The high acceleration time shift control method for a vehicle according to claim 11, wherein, when a maximum value of the actual input rotational speed during shifting is equal to or higher than a predetermined value, effect of the correction value on the shift determination speed is made large compared with a case where the maximum value of the actual input rotational speed during shifting is lower than the predetermined value.